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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/558,645	04/26/2000	Alexander Kaplan	08935-170001/M-4860	9640

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EXAMINER
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EDMONDSON, LYNNE RENEE

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 12/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/558,645

Applicant(s)

KAPLAN ET AL.

Examiner

Lynne Edmondson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 27-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 39-43 is/are allowed.
- 6) ☒ Claim(s) 27-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/9/06</u>  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 27-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaplan et al. (USPN 6399243 B1) in view of Armstrong (USPN 3948684).

Kaplan teaches an air recovery battery with a racetrack configuration (col 3 lines 1-27) comprising a container (20) having an air access ports (openings, col 4 lines 45-48), a seal assembly (141), a cathode (50) coated on a collector (col 3 lines 44-57), the coating comprises 60-93% MnO<sub>2</sub>, carbon and 2-25% of a hydrophobic binder (PTFE) (col 3 lines 44-63), preferably 2-7% binder (col 4 lines 8-19), a zinc anode (80) and separators (40) (col 3 lines 6-15 and col 4 lines 45-67). The battery may be wound into a cylindrical shape. Any size battery can be formed including but not limited to AA and AAA (col 3 lines 27-34) size cells. However, there is no disclosure of a paste or of C, D or prismatic batteries.

Armstrong teaches a method of forming a cathode comprising MnO<sub>2</sub>, a binder and a solvent which is formed as a paste and applied to a carrier substrate (col 7 lines 38-68). As the solvent is typically liquid and removed after deposition of the paste it is unlikely that the weight percent of the powder would be altered by the presence of a particular volume of solvent which typically serves as a vehicle to give paste fluidity.

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It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the cathode in a simple and conventional manner such as paste application to provide consistent coating amounts in a simple and cost-effective manner and that the same process would be used to make cylindrical air batteries of a variety of sizes including C and D size cells depending on the application or use of the cell (Kaplan, col 3 lines 28-34). Although more material would be used for larger batteries, the process is essentially the same. A prismatic battery is an obvious variation of a racetrack configuration. Although the shape is slightly different, the process is essentially the same. Cathode formulations are typically based on weight percent of the powders added.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing

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that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

2. Claims 27-31 and 34-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaplan et al. (USPN 6372370 B1) in view of Armstrong (USPN 3948684).

Kaplan teaches a cylindrical air recovery battery comprising a container having an air access port (opening 25), a seal assembly (160), a cathode (50) coated on a collector, the coating comprises 60-93% MnO<sub>2</sub>, carbon and 2-25% of a hydrophobic binder (PTFE), preferably 2-7% binder (col 4 lines 4-10), a zinc anode (100, col 5 lines 50-58) and separators (40) (col 2 line 49 0- col 3 line 53). The battery may be wound into a cylindrical shape (figure 1). Any size battery can be formed including but not limited to AA, AAA, C and D (col 3 lines 1-4) size cells. However, there is no disclosure of a paste.

Armstrong teaches a method of forming a cathode comprising MnO<sub>2</sub>, a binder and a solvent which is formed as a paste and applied to a carrier substrate (col 7 lines 38-68). As the solvent is typically liquid and removed after deposition of the paste it is unlikely that the weight percent of the powder would be altered by the presence of a particular volume of solvent which typically serves as a vehicle to give paste fluidity.

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the cathode in a simple and conventional manner such as paste application to provide consistent coating amounts in a simple and cost-effective manner.

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The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 27-38 have been considered but are moot in view of the new ground(s) of rejection.

4. It is noted that Kaplan '370 teaches a single cathode and ports (air access openings) through which air can reach the cathode (figures 1 and 2 and col 2 lines 49-65).

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5. It is noted that Kaplan '243 teaches a single cathode and ports (air access openings) through which air can reach the cathode (figure 7 and col 4 lines 45-48).

### ***Allowable Subject Matter***

6. Claims 39-43 are allowed.

7. The following is an examiner's statement of reasons for allowance: The closest prior art teaches a method of making a backing layer with no catalyst using the instant method. A separate catalyst layer may be subsequently attached but is not a component of the initial mixture or paste. See Debe et al. (USPN 6183668).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hampden-Smith et al. (USPN 6911412 B2, Zn-air alkaline battery, paste), Sotomura et al. (USPN 6939630 B2, alkaline air battery), Taucher et al. (WO 93/12551 A1), Chandramouli et al. (USPN 4775455, catalyst, carbon, stirring at

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room T), Getz et al. (USPN 5464709, hydrophobic binder, >60% MnO<sub>2</sub>) and Thiebolt, II et al. (USPN 6174622 B1, PTFE, >60% MnO<sub>2</sub>).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne Edmondson whose telephone number is (571) 272-1172. The examiner can normally be reached on Monday through Thursday from 7:00 a.m. to 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lynne Edmondson  
Primary Examiner  
Art Unit 1725

*LEB*  
*12/7/06*

LRE